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ABSTRACT

A cost benefit analysis of the Community College of Vermont revealed that (1) the proportions of State support of the total budgets for Vermont's institutions of higher education are 22.7% at UVM, 37.2% at the VSC, and 12.7% for the Community College; (2) tuition is budgeted for FY73 to generate 27% of total cost at UVM, 29.6% at the VSC, and 29.6% at the Community College; (3) tuition cost to students is $120 per course unit at UVM, $90 at the VSC, and $45 at the Community College; (4) faculty costs are $450 per course at the Community College and range from $750 to $900 at the VSC; (5) proportion of the total budget going directly for instruction is 49.6% at the VSC and 65.8% at the Community College; (6) the start-up cost for another state college would be $14,000,000, while another Community College regional site would be $36,548; (7) the percentage of Vermont students going on to higher education is approximately 20% less than the national average; many of the added enrollment in other States are in community colleges; and (8) the Community College's FY74 budget request is .6% of the costs to the State of support for unemployed or low-income people; the community college provides help for these people. The figures for the Community College are projections for FY74. (Author/KM)

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U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
OFFICE OF EDUCATION

COST BENEFIT ANALYSIS

Community College of Vermont

JC 130 043

Charles A. Parker

December, 1972

UNIVERSITY OF CALIF.
LOS ANGELES

MAR 09 1973

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

STATE OF VERMONT
DEPARTMENT OF EDUCATION
MONTPELIER
05602

December 6, 1972

Mr. Peter P. Smith
Executive Director
Community College of Vermont
Box 81
Montpelier, Vermont 05602

Dear Peter:

The following report represents the conclusion of an extensive five month analysis of the Community College. This analysis included many meetings with legislators, college administrators and members of your staff. All have been extremely helpful in providing information and suggestions.

Please understand that the conclusions of this report illustrate the ability of the Community College to provide post-secondary education to those unable to attend other institutions. The Community College, in general, could not serve the clientele of other institutions or provide the various other services such as the Agricultural Extension Service.

I wish to express particular thanks to the members of your staff who provided extensive information and suggestions: Charles F. Parker, Thomas Yahn, and Peter Garon, the three Community College Site Coordinators; Steven Hochschild, Planner; and Dorothea Hanna, Business Manager. Also thanks to those who critiqued the preliminary draft: A. Richard Boera, Comptroller, Lyndon State College; Alan Weiss, Deputy Commissioner of Education, State of Vermont; and John Alden, Director of Institutional Research, University of Vermont. Last, but not least, thanks to Cathie Sweet of the Community College who did the secretarial work on the many drafts and the final document.

Sincerely,

Charles A. Parker

Charles A. Parker
Financial Analyst

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ABSTRACT OF MAJOR FINDINGS

The following is a brief overview of this report. Several qualifications and assumptions were made to derive these figures and they are carefully stated in the text.

The proportions of state support of the total budgets for Vermont's institutions of higher education are: 22.7% at UVM; 37.2% at the VSC; and projected at 12.7% for the Community College.

Tuition is budgeted for FY/73 to generate 27.0% of total cost at UVM; 29.6% at the VSC; and is projected for the Community College for FY/74 at 29.6%.

The tuition cost to students is: $120.00 per course unit at UVM; $90.00 at the VSC; and is projected for the Community College for FY/74 at $45.00.

Faculty cost range from $750 to $900 per course at the VSC and are projected at $450 at the Community College.

The proportion of the total budget which goes directly for instruction is: 49.6% for FY/73 at the VSC; and is projected at 65.8% for FY/74 at the Community College.

The start-up cost for a conventional fifth state college would cost $14,000,000. A similar capacity Community College regional site would cost $36,548 to start-up.

The percentage of Vermont students continuing on to higher education is approximately 20% less than the national average. Much of the added enrollments in other states are in their community college systems.

The Community College is likely to continue to attract significant contributions of in-kind (donated) services. Estimates are above $75,000 per year.

Additional counseling effort for financially or educationally disadvantaged students amounts to $20.00 per course unit for this group.

The Community College's FY/74 budget request is 0.6% of the costs to the state of various support for unemployed or low income individuals in Vermont. The Community College provides a unique service to these individuals.

The Community College does not duplicate existing facilities or activities. Funds will be provided for babysitting, etc. as part of financial aid packages but the Community College does not provide these services since they exist through various programs of the Office of Child Development.

Research Design

Cost Benefit Analysis of the Community College of Vermont

This study will culminate in the creation and presentation of a cost-benefit analysis of services provided by the Community College of Vermont. The analysis will include cost benefit comparisions of the Community College services with those of the other higher educational institutions within Vermont.

The study will be developed by collecting data and information both from published documents and from interviews with state and education personnel within Vermont. The purpose of this study is two-fold: 1) to provide decision-makers with the necessary information to judge the feasibility of funding the Community College as Vermont's fifth state college, and 2) to provide the Community College with information for internal management decisions.

This research will minimally answer the following questions:

A. What is the definition of a Community College unit of service?

B. Is a Community College unit of service comparable to others, and, if not, how can it be adjusted for comparison?

C. What are Vermont's costs for producing a unit of service for Vermont students at the Community College as compared with the costs of providing an equivalent unit of service at the other public higher educational institutions within Vermont?

D. What are the costs per unit of service, incurred serving students who come from low-income environments and/or who have poor educational backgrounds, which are not incurred by serving other students?

E. What is the dollar value of in-kind services, in total and per unit of service, which the Community College will continue to be able to attract?

F. What proportion of total cost does tuition cover at the Community College as compared with the various other public state institutions?

G. Given that the Community College students can be engaged in Associate Degree courses, Certificate courses, and non-degree courses, what percentage of the total, historically and projected, fall into each category?

H. What social benefits, type and value, does the Community College provide the community and state along with their course effort?

I. Recognizing certain site operational constraints, what is the optimal student body level for a Community College Regional Site operation?

J. Given the general breakdown of costs into Instructional, Administrative, and Operational expenses, how does the Community College's percentage allocation compare to that of the other Vermont State Colleges?

K. What is the start-up cost for a Community College Regional Site operation to handle 500-1,000 (minimum-maximum) students as compared to the start-up costs for a campus based fifth state college?

L. Given the increasing population not served by existing educational facilities and estimating other sources of funds, what cost projections can be made and how will these affect tuition costs and the costs to the state?

Cost Benefit Analysis

Introduction:

A cost benefit analysis is an analytic study designed to assist decision-makers in identifying a preferred choice among possible alternatives. It provides information on how to maximize some desirable measure of output, give limited resources and a budget constraint. The steps of a cost benefit analysis are:

1. Identify objectives of the decision-makers.
2. Identify the alternative means of obtaining the objectives.
3. Determine the costs of the alternatives.
4. Develop a model to predict future costs and benefits.
5. Provide a criterion for ranking alternatives.

The first two steps of this analysis are: this study assumes, based on inputs from legislators, educators, and state personnel, that one objective of decision-makers is to provide higher education for Vermonters. Statistics indicate that only 34 percent of Vermont high school graduates enter college compared with the national average of 57 percent.[1]

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[1] Warren W. Willingham, Free-Access Higher Education, College Entrance Examination Board, New York, 1970, p. 202.

This indicates the objective is not presently being met and some corrective measures are necessary. The most feasible alternatives appear to be:

1. Expand existing public higher education facilities.
2. Construct other campus based public institutions.
3. Fund the Community College of Vermont.
4. Fund existing private institutions.

The three remaining steps of this cost-benefit analysis will be examined extensively in the body of this document and all five steps summarized in the conclusions.

The Community College has a unique structure within the higher educational facilities in Vermont. The aspects of this structure which affect financial considerations are discussed at length throughout this document. An important difference which must be clarified initially is the complete absence of the use of credits within the Community College.

The Associate degree requires successful demonstration of skills within fifteen clearly defined areas called "competencies." This means that the Community College can list exactly the minimum skill proficiency of each of its graduates. The distinction is that the Community College does not require the accumulation of sixty plus credits in some given pattern for an Associate degree, but does require demonstration of proficiency in fifteen skill areas as approved by the Vermont State Colleges. Credits have traditionally implied the learning of skills, but in reality, this relationship is vague. Competencies, on the other hand, relate directly to skills and are stated so specifically. The Community College utilizes competencies as a measure of achievement and, in so doing, can document acquired skills.

The Community College operates with a trimester system by including the summer session as the third semester. The course length and student-teacher contact hours are similar to the traditional semester system. This allows a systematic, year round operation, without the usual summer break and the resultant under-utilization of resources.

The Community College is a non-campus, community oriented college, now offering courses in communities throughout much of the eastern half of Vermont. It does not own buildings, but instead, offers courses in high schools, churches, youth centers, etc. where it serves the needs of the students.

The following sections, identified by alphabetical letters, relate to the research design.

A. Unit of Service Definition:

"... an educational process which moved a student from the lowest quartile of high-school achievement to the second quartile of college-graduate achievement would be accomplishing something tremendous, whereas the college which accepted students only from the top decile of high school achievement and delivered them into the top decile of college achievement would be doing relatively much less."[2]

The standard unit of service at the Community College is a trimester course. The Community College now offers various curricula leading to an Associate degree. To be granted a degree, students must successfully demonstrate skills in fifteen competencies. Courses are designed and developed to enable students to acquire skills which meet competencies. The Community College also offers a Certificate degree which requires successful demonstration of skills in eight competencies. Various other courses are offered for students either not wishing to enroll in a degree program or wanting training in non-degree related areas.

Because of the Community College's unique clientele and characteristics, several functions are handled differently than at Vermont's other public higher education institutions.

1. Many Community College students are disadvantaged and/or have had previous educational problems which, therefore, require extensive counseling and coordinating efforts not required for other students. For this reason, the Community College counseling effort is performed by full-time, extensively trained staff working in close coordination with teachers. As the college grows, student interaction within the community will significantly aid this effort.

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[2] Frederick E. Balderston, "Thinking About the Outputs of Higher Education", in The Outputs of Higher Education: Their Identification Measurement and Evalution, Ben Lawrence, George Weatherby and Virginia W. Patterson, editors, Western Interstate Commission for Higher Education, Boulder, Colorado, 1970, p. 14.

2. Many of the Community College's students are employed full time (approximately 50%) which necessitates mostly evening courses. [3] This allows extensive utilization of existing resources, particularly high school classrooms. It also enables the Community College to draw upon educators and skilled individuals within the community for teaching. These employed students not only gain valuable on-the-job work experiences and training, but also earn taxable income while attending the Community College.

3. Teachers are part-time, untenured employees and are not paid for research or other activities not directly related to the student learning experience. These facts, and the afore-mentioned fact that the Community College's teachers do not counsel, create significantly lower instructional costs than at other institutions. (Salaries at the Community College will be $450 per course as compared with the other Vermont State Colleges' range of $750 to $900 and upward per course.)[4] The Community College avoids the standard 18% plus fringe benefit cost since its teachers are not full-time employees but hold other regular jobs. This represents a much more efficient use of teaching resources.

4. Classrooms and office space are obtained through the use of existing facilities, usually rent free, but incurring some expense for utilities, upkeep, and janitorial services. There is significant, continued motivation for superintendents and principals of high schools to expand the use of these high fixed cost investments, particularly for members of their community. Since the Community College is community based, taking its courses to the consumer, it is in a unique position to take advantage of these facilities. The Community College, therefore, can and will continue to avoid the high fixed cost to taxpayers, in the form of interest and debt amortization charges, for the "brick and mortar" investments typical of other higher education institutions. The University of Vermont and Vermont State College's debt service, not paid by special student fees, for FY/73 will cost the taxpayers $2,550,000. [5]

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[3] VRCCC'S Annual Report dated June 30, 1972, pp.62 and 63.

[4] This information provided by the VSC business managers.

[5] From Budget and Management document entitled Vermont General Fund Expenditures for Education 1963-1973, dated June 1, 1972.

If enrollments continue to increase, this debt service cost can only increase in the future. If enrollment decreases, the per student costs will greatly increase both to the student and to the state.

5. The Community College becomes part of the community it serves, using existing resources, drawing local experts for teachers and staff, and serving the particular needs of that community. Actually it serves the function of a formal catalyst for sharing skills and knowledge within the community.

To summarize, the standard unit of service at the Community College is a trimester course. Trimester courses are designed and developed to enable students to acquire skills which meet competencies.

B. Comparability:

The question of comparability of a Community College unit of service with those of other institutions is significant both for the two-way student transfer situation and for evaluation of a Community College unit of service. The question is not particularly simple at any institution and is more complex with the Community College because of its unique nature and its short history. The answer emerges from considering several pieces of information. First, the Vermont State Colleges' Board formally accepted the Community College of Vermont, effective September 1, 1972, as a fifth state college and has sanctioned the Community College Associate degree program. The Community College has appropriate transfer arrangements with the University of Vermont and the other State Colleges. Next, four separate groups during the last year and a half have evaluated the Community College. All issued very favorable reports.

1. In September, 1971, a joint committee of the *University of Vermont* and Vermont State Colleges' Board (comprised of legislators, educators, and laymen), chaired by Dr. Frank Smallwood, published a report on the history and future needs of Vermont Higher Education. The report included a strong recommendation that the new Community College concept be included in any state wide planning for higher education. The report went on to endorse the College's activities to date and support the philosophy and concept warmly.

2. In late May, 1972, the Vermont State Colleges' evaluation team (comprised of educators) chaired by Sister Elizabeth Candon, President of Trinity College and the 1972 President of the Vermont Higher Education Council, delivered another positive endorsement after a detailed visit. Reporting for the majority of the Committee, the Chairman wrote "...we find that their (the Community College's) progress to date has removed the question of 'reasonable chance' (of success)". In addition, the team endorsed the concepts of "open access", accountability in educational programs, and coordination of existing resources. Speaking to other education questions, the team recommended that "the Community College be permitted to evaluate the appropriateness of 'credit' for courses" and the quality of instructors.

3. Shortly after the Candon Committee's report, the Carnegie Corporation of New York awarded the Community College $98,880.00 to expand its operations and strengthen its existing field staff. The grant was awarded following a visitation by a team, from the foundation, comprised of outside laymen.

4. During the summer of 1972, a sub-committee of the Vermont State Colleges' Board of Trustees (comprised of laymen) was assigned to look into the Community College's operations and investigate possible avenues of affiliation between the two institutions. After several meetings, the Committee unanimously recommended that the Community College become a part of the Vermont State Colleges, Inc.

Finally, the Community College carefully documents the student's skill proficiency and methods by which these skills were acquired. This is a significant step forward in attempting to bring quality control into higher education.

To summarize, these points shed significant light on the continually vague question of comparability. Although the Community College does not approach higher education in the traditional manner, the preceding facts illustrate that it provides a high quality education and a quite comparable service.

C. Unit Cost Comparison of State Allocations:

"Such factors as faculty tenure and specialized facilities and equipment may cause either increased institutional costs through a transition period, or constrain the alternatives available to the institution."[6]

The Community College anticipates FY/74 expenses at $683,076.[7] This budget will allow the college to operate three Regional Sites throughout seven counties in Vermont. These sites will provide 4,500 course units for Vermont students during the college's full-time, year-round operation.

Through a maximum effort to find outside funding, the Community College expects to secure $596,380 or 87.3% of its projected $683,076 total costs. The college will need a sum of $86,696 or 12.7% of its projected total costs from the state.[8] For comparative purposes, actual University of Vermont FY/73 appropriations from the state were $9,529,000 of the total $41,905,449 budget or 22.7%. Actual Vermont State Colleges'

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6 James Framer, Why Planning, Programming, Budgeting Systems For Higher Education?, Western Interstate Commission for Higher Education, Boulder, Colorado, 1970, pp 18 & 19.

7 See Exhibit III.

8 Figures from the Budget Narrative, B-7, of Community College's portion of the Vermont State Colleges' FY/74 Budget Request.

FY/73 appropriations from the state were $4,055,000 of the total $10,910,354 budget or 37.2%.[9]

The following illustrates the income breakdown of the Community College:

1. Tuition - The Community College expects to raise $202,500 or 29.6% of its needed income from tuition, based on a student tuition charge of $45 per course. The Community College will help defray this tuition charge for disadvantaged students through an aggressive financial aid program, The Community College expects $50,000 to aid students directly from private foundations. It is also likely that some Community College students will be eligible for aid from the Vermont Student Assistance Corporation.

2. Federal Government Grants - The Community College expects Federal Grants to total $250,000, derived from both the Office of Education and funds made available under the new Higher Education Act which specifically authorizes funds for community colleges. The Community College's current Office of Economic Opportunity grant will terminate by the end of FY/73 and cannot be renewed due to prior agreement.

3. Private Foundation Grants - The Community College anticipates grants up to $98,880 from private foundations.

4. Agency Contracts - The Community College estimates that it can obtain contracts to provide education and training for state manpower and human services agencies valued at $45,000.

5. State of Vermont - The Community College has submitted a budget request to the Governor for $86,696 or 12.7% of its total costs.

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9 Figures from Executive Budget FY/73, State of Vermont, pp 192 and 194, and David M. Otis, Department of Budget and Management, State of Vermont, Montpelier, Vermont.

This $86,696 budget request will help provide 4,500 course units, exclusively for Vermonters, at a cost of less than $20.00 per course unit to the state. To arrive at a comparable state college figure, certain adjustments are necessary. The Vermont Technical College provides a unique product to Vermont's higher education which, because of its technical nature, costs more. (i.e. it depends on expensive capital equipment) Therefore, only information for Castleton, Lyndon, and Johnson will be considered.

State appropriations for Johnson, Lyndon, and Castleton for FY/73 sum to $2,884,739.[10] This provides for 3,300 Full Time Equivalent students for two semesters, averaging 15 credits per semester.[11] This is a total of 99,000 (3,300 X 15 X 2) credits or $29.14 (2,884,739 ÷ 99,000) per credit cost to the state (i.e. $87.42 per course unit). Also, at the state colleges, 25% of these courses were taken by out-of-state students. If the state appropriation was intended to only support Vermont students, then the per credit cost to the state was $38.85 (2,884,739 ÷ [99,000 X 75%]) or about $117.00 per course unit.

State appropriations in FY/73 for the University of Vermont's Colleges of Education and Arts and Sciences are $1,744,220.[12]

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[10] See Exhibit I.

[11] Figures from Executive Budget FY/73, State of Vermont, p. 193, and David M. Otis, Department of Budget and Management, State of Vermont, Montpelier, Vermont.

[12] See Exhibit II.

This provides for 4,206 students for two semesters, averaging 15 credits per semester.[13] This is a total of 126,180 (4,206 X 15 X 2) credits or $13.82 ($1,744,220 ÷ 126,180) per credit (i.e. $41.46 per course unit). Also at the University of Vermont 40 percent of these credits were taken by out-of-state students. If the state appropriation was intended to only support Vermont students, the per credit cost was $23.04 ($1,744,220 ÷ [126,180 X 60%]) or about $69.00 per course unit.

In addition to these direct costs, the state also pays the interest and amortization for the colleges' debt service. This costs $2,550,000 for FY/73 which enables 540 Full Time Equivalents at Vermont Technical College, 3,300 at the other Vermont State Colleges and 7,734 at the University of Vermont.[14] These 11,574 (540 + 3,300 + 7,734) Full Time Equivalents, averaging 30 credits per year, give a total of 347,220 credits with a $7.34 cost per credit for debt service or about $22.00 per course unit. The Community College has no capital cost but does include its rental expense when figuring the costs per course unit.

To summarize, the per course unit costs to the State for Vermont students are: $139.00 (117.00 + 22.00) at the Vermont State Colleges, $91.00 (69.00 + 22.00) at the University of Vermont, and about $20.00 at the Community College.

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13 Figures from John Alden, Office of Institutional Studies, University of Vermont, Burlington, Vermont.

14 Executive Budget FY/73, State of Vermont, pp 191 and 193.

Cost per course to the State

VSC	$139.00
UVM	$ 91.00
CCV	$ 20.00

D. Special Counseling Costs:

"Certainly a major area of efficiency gain available to American higher education ... would be to increase the achievement and success rates of students who presently fail to complete programs." [15]

The Community College's "target population" includes low income individuals, those with no access to existing facilities of higher education and those with poor educational backgrounds. Low income is a function of both total family income and family size. The following table illustrates this criterion. If the student's income is below the total family income for his family size, he is considered low income.[16]

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15 Frederick E. Balderston, "Thinking About the Outputs of Higher Education," in The Outputs of Higher Education: Their Identification Measurement and Evaluation, Ben Lawrence, George Weatherby and Virginia W. Patterson, editors, Western Interstate Commission for Higher Education, Boulder, Colorado, 1970, p 10.

16 Table from the Community College current student questionnaire.

Family Size	Total Family Income
1	$ 3,250
2	4,225
3	5,375
4	6,500
5	7,640
6	8,625
7	9,600
8	10,575
9	11,550
10	12,525
11	13,500
12	14,475
More than 12	Less than 15,450

No access to existing facilities is determined by a "Student Support Questionnaire" asking, "Could you go to college if the Community College didn't exist in your area?" Poor educational background is defined as those without a high school diploma.

Using the preceding criteria, 38.4% of the Community College's students have been low income, 70.9% have no other access, and 13.9% do not have high school diplomas. percentage of Community College students who are in at least one of the above three categories, or the "target population," is 86.2%. Students who are from low income families and/or who have poor educational backgrounds require extra counseling effort. The percentage of Community College students in at least one of these groups is 46.7%.[17] Counselors, who supply this extra supportive effort, represent the largest single

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[17] Taken from the information derived from the current Community College student questionnaire.

staff expense and are budgeted for FY/74 at $35,420.[18] The Community College staff estimate that about 75 percent of the counselors time should be, and has been directed toward this low income and/or poor education group. This represents 2,102 course units (46.7% of 4,500). These 2,102 course units have a counseling cost of $64,065 (75% of $85,420). These students would need some counseling regardless of their situation. This is reflected in the money spent counseling the remaining portion of the students, which is $21,355 (85,420 - 64,065). Subtracting this standard counseling effort from the total cost of counseling the low income and/or poor education group, indicates an additional cost of counseling for this group of $42,710 (64,065 - 21,355). This $2,710 for 2,102 course units represents an additional counseling cost for this group (over and above that provided to all students) of about $20.00 per course unit.

To summarize, the additional effort provided by the Community College for low income and/or poor educational background individuals, mostly in the form of additional counseling effort, costs an extra $20.00 per course unit.

E. Value of In-Kind Services:

Services which will continue to be provided without charge (in-kind) to the Community College include classroom facilities and office space. The number of courses are projected for FY/74 at around 150 per trimester or 450 per year. The Community College has 9 offices throughout the three regional sites. Three of these offices are the primary offices for the three

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[18] From Form B-3 of the Community College's portion of the Vermont State Colleges' FY/74 Budget Request. Also see Exhibit III.

sites. Individuals providing these facilities submit to the Community College estimates of their rental value. These estimates average $200 per month for the three main offices and $50 per month for the others. These figures include the use of furniture and equipment in the offices. This creates a total value of in-kind office facilities of $10,800 per year.[19] At 15 meetings per trimester per class, the total meetings per trimester is 2,250 (150 X 15). At $10 per meeting, this creates a total value of in-kind classroom facilities of $22,500 per trimester or $67,500 per year.

This creates a total value of projected in-kind services of $78,300. As the Community College expands to more regions and offers more courses, the figure will continue to expand.

To summarize, because of the Community College's unique characteristics and its community related efforts, it is likely to continue to attract significant contributions of in-kind services. Estimates are above $75,000 per year.

F. Tuition Proportions:

The per course tuition charge for students at the University of Vermont is $120.00; at the four-year state colleges, $90.00; and for students at the Community College, it is projected for FY/74 at $45.00. Tuition is budgeted for FY/73 to pay $11,301,452, or 27.0% of the total $41,905,449 at the University of Vermont and $3,300,900, or 29.6% of the total $11,137,900 at the Vermont State Colleges. The projected budget for the

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19 This information provided by Dorothea S. Hanna, Administrative Services Coordinator, Community College, Montpelier, Vermont.

Community College for FY/74 has tuition paying $202,500 or 29.6% of the total $683,076.[20] This illustrates that the projected dollar cost to Community College students is significantly less than at the other state institutions yet the total tuition revenue generates approximately the same percentage of the total costs.

Since the Community College's primary aim is to serve its "target population", extensive effort is being made to attract monies for financial aid. An experienced financial aid administrator has just been hired to develop and to implement a financial aid system. Because of the disadvantaged nature of most Community College students, it seems very likely federal monies will be forthcoming in this area.

To summarize, the tuition cost at the Community College is significantly less than at other state institutions, yet provides about the same proportion of total costs.

Tuition per Course

UVM	$120.00
VSC	$ 90.00
CCV	$ 45.00

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20 UVM and VSC figures from Executive Budget FY/73, State of Vermont, pp 192 and 194, CCV's figures from B-7 of CCV's portion of the Vermont State Colleges' FY/74 Budget Request.

G. Student Enrollment Breakdown:

Past data on degree enrollment information is limited for a number of reasons. The Community College is still relatively young and has only offered courses for 18 months. Only recently, the Community College received the right of offer an Associate degree and students are just beginning to develop their programs with counselors. These and the unusual characteristics of the Community College student body make available information limited. Fall '72 statistics[21] show 17.1% are already interested in degree programs. As the year progresses and counselors continue to write contracts, this figure will rise significantly. These statistics show 72.4% are interested in learning new skills, improving existing skills, or working on a degree. Most of these will probably enroll in degree programs as the Community College develops programs in their areas of interest. Coordinators at the regional sites indicate that, as an ongoing situation, the Community College will probably have approximately 60% enrolled in either a Certificate or Associate degree program. The remaining 40% would be courses taken to develop a specific skill, or for personal enjoyment.

To summarize, projections indicate that 60% of the Community College student body will be enrolled in degree programs.

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[21] Taken from the information derived from the current CCV's student questionnaire.

H. Social Benefits:

"Advantages [of higher education] may extend to neighbors or to the general taxpayer in the form of a more desirable community or a reduction in antisocial behavior. These gains may also have some concrete economic manifestations in the reduction in public welfare payments and the costs of police protection. The intergenerational transfer of educational benefits takes a veriety of forms. Perhaps the best example is the strong relationship between the educational level of parents and the success of their children in school."[22]

The Community College provides a unique service to disadvantaged residents of Vermont. It enables them to pursue college work in their own communities without disrupting their jobs or families. Students can continue valuable work experience while in school and therefore contribute to the economic well being of their community and state. In traditional education, the wages lost while students attend college are tremendous, "Foregone earnings make up ... three fifths of the allocative costs of college education."[23] The students' learning experiences are continually shared with their families and friends, making the entire community a learning center. "... training may well give rise to other real benefits, including non-monetary benefits to trainees, and indirect benefits to 'third parties' not participating in training programs."[24]

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22 Samuel Bowles, Planning Educational Systems for Economic Growth, Harvard University Press, Cambridge, Mass., 1969, page 20.

23 Theodore W. Schultz, Capital Formation by Education, Journal of Political Economy 69 (Dec., 1960): pp 577 and 582.

24 D.O. Sewell, Training the Poor, A Benefit-Cost Analysis of Manpower Programs in the U.S. Anitpoverty Program, Industrial Relations Centre, Queen's University, Kingston, Ontario, 1971, p. 46. Note: For comprehensive catalogues of the possible external benefits of education, see M. Blaug, The Rate of Return of Investment in Education; (footnote continued on next page)

Unemployed students can upgrade their skills and knowledge, placing them in a better position to secure employment (note: only 50% of the Community College's students are fully employed). This tends to reduce costs to the state, such as Aid to Needy Families with Children, Medical Assistance program, General Assistance and the Food Stamp program. These costs for FY/72 were: $5,091,000, $7,192,000, and $220,000 respectively, for a total cost to Vermont of $14,426,000.[25] The Community College's FY/74 budget request is 0.6% of this total.[26]

Upgrading a community's educational level tends to decrease the crime rate. This reduces law enforcement costs, insurance rates, and personal losses. "... the real costs, of antisocial behavior include the costs of harm to persons and damage to property, the costs of resources involved in law enforcement, and the disincentive effects on output of the taxation necessary to finance law enforcement."[27] Also, an educated population tends to attract industry and have a positive economic effect on the entire community and state.[28]

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24 (footnote continued) The Manchester Journal 33 (Sept. 1965) pp 234-235, and Burton A. Weisbrod, External Benefits of Public Education: An Economic Analysis, (Princeton, N.J.: Princeton University Department of Economics, Industrial Relations Section, 1964.)

25 Executive Budget FY/73, State of Vermont, pp 122 + 123.

26 See David A. Page, Retraining under the Manpower Development Act: A Cost-Benefit Analysis, Public Policy 13 (1964): 257-67 for a similar discussion.

27 D.O. Sewell, Training the Poor, A Benefit-Cost Analysis of Manpower, Programs in the U.S. Antipoverty Program, Industrial Relations Centre, Queen's University, Kingston, Ontario, 1971, p. 47.

28 (footnote on next page)

Although there are many existing programs to help the disadvantaged, none of these can offer them a way to acquire a higher education and, therefore, a realistic route out of their poverty. The disadvantaged pay taxes to support the existing higher education facilities yet cannot take advantage of them. The real burden on these individuals is in paying for programs which they either cannot make use of, or which create no lasting benefit in their lives.

To summarize, the Community College provides significant benefits to the communities and to the state in the form of added social benefits along with its course offerings.

I. Optimal Site Operations:

The Community College's regional site coordinators indicate that the optimal site operation would include 1,000 students per trimester. The site personnel for this level of operation would be: one coordinator, three assistant coordinators, ten counselors, and three secretaries.[29] At some future date, if a site reached this limit, it would be sub-divided into two or more sites by hiring a new coordinator and staff for each new site.

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[28] (footnote from previous page) For a more complete analysis of this problem, see James S. Coleman, et. al., Equality of Educational Opportunity, (Washington: Superintendent of Documents, 1966) Chapter 3.

[29] The student-staff ratios are based on information provided by the CCV's three regional coordinators: Charles F. Parker, Thomas Yahn, and Peter Garon.

Based on this staff to student ratio (i.e. one coordinator for each 1,000 students, one assistant coordinator for each 350, one counselor for each 100 and one secretary for each 350) the Community College is presently undermanned. The problem is particularly acute in the area of counselors, who are critically important in this type of educational process. This shortage is the result of a financial constraint created by the original Office of Economic Opportunity grant. The Community College's FY/74 budget includes the necessary funds to correct this.

To summarize, there seems to be no significant constraint for the Community College to expansion. This section does indicate a current critical shortage in the area of counselors.

J. Comparative Percentage Funds Allocation:

The comparative percentage allocations for Instruction, Administration, and Operations are illustrated in the form of a bar graph in Exhibit III. This Exhibit also provides complete salary and expense information of the Community College for FY/74.[30] The following chart is a brief summary of that information with comparisons to the Vermont State Colleges' FY/72 actuals.[31]

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30 Information from forms B-3, 4, 7 of the CCV's portion of the Vermont State Colleges' FY/74 Budget Request.

31 VSC FY/72 figures from John Moody, Financial Officer, VSC Board, Burlington, Vermont.

	CCV	VSC
Operations	$ 56,540.	$1,125,000.
	8.2%	16.0%
Administration	$177,330.	$2,404,000.
	26.0%	34.4%
Instruction	$449,206	$3,468,000.
	65.8%	49.6%

To summarize, this table illustrates that the Community College, because of its unique structure, is able to funnel proportionately more of its money and effort into direct student instruction.

K. Comparative Start-Up Costs:

"Universities need procedures for systematically re-allocating resources to reflect changing priorities caused by such factors as changing patterns of student demand. My impression is that most universities do not have such procedures."[32]

Because there is no state college in Southeastern Vermont, there has been significant discussion and analysis of the start-up costs for a traditional state college in this location. Paul Andrews, Executive Assistant to the Provost of the Vermont State Colleges, developed some estimates which appeared in the

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32 Alain C. Enthoven, "Measures of the Outputs of Higher Education: Some Practical Suggestions for their Development and Use", The Outputs of Higher Education: Their Identification, Measurement, and Evaluation, Ben Lawrence, George Weatherby, and Virginia W. Patterson, editors, Western Interstate Commission for Higher Education, Boulder, Colorado, 1970, p 50.

Smallwood report of 1971. "If the University and the state colleges are to handle sizable increases in Vermont student enrollments in the years ahead, this will require a major new capital construction program by 1980. In an effort to indicate the magnitude of the costs that could face the Vermont State Colleges system if a decision is made to either establish one or more new college campuses (or to expand the academic facilities at Castleton, Johnson, and Lyndon) to handle future enrollment increases, Paul Andrews has prepared a long-range estimate of capital construction cost requirements for academic facilities that is broken down into specific unit cost components on the next page. Andrews' estimates are based on a phasing of construction through 1980 and on the further assumption that the inflationary spiral in the construction industry will add 6% per year to building costs, thus raising project costs for academic facilities from their current rate of $45 per square foot to $95 per square foot by 1980!

According to Andrews' estimates it will cost almost $14,000,000 to build the academic facilities (exclusive of dormitories) for one new state college campus of 900 to 1,200 students by 1980. [see next page] These estimates indicate that it may not be desirable to expand state college facilities to handle future enrollment increases if some alternative course of action is feasible. Since the higher education debt service has already reached $2.1 million annually, it is questionable whether it would be wise for the State of Vermont to invest major

POTENTIAL VSC LONG-RANGE CAPITAL CONSTRUCTION REQUIREMENTS

Capital construction requirements at the four-year campuses in the VSC system are based on a planning model developed in 1965, involving, among other factors, an enrollment of 900 plus students at any given campus.

Castleton and Johnson have already exceeded the 900 plus number used in the planning model and Lyndon could reach 900 plus in 1972. With the exception of periodic renovation and minor landscaping, the completion of the various projects for which funding is requested in 1972 will complete construction at these campuses.

In the years following fiscal 1971-1972, to the end of the decade, an annual increment of 260 four-year students is expected. Whether accommodated at an existing or a new campus, significant expenditures are involved in providing the academic facilities for multiples of 900 to 1,200 additional students by fiscal year 1979-1980:

	Requirement	Year Funded	Year Completed	Cost	Footage
(1)	Classrooms and offices.....	1972	1974	$ 1,465,000	25,000
(2)	Utilities, fields, roads, landscaping, parking.....	1972	1975	$ 550,000*	
(3)	Library.....	1973	1975	$ 1,305,000	20,000
(4)	Laboratories, physical education facilities, and auditorium.....	1973	1976	$ 6,180,000	97,000
(5)	Maintenance-storage bldg...	1974	1975	$ 133,000	8,000
(6)	Utilities, fields, roads, landscaping, parking.....	1976	1979	$ 750,000*	
(7)	Student Union.....	1977	1979	$ 1,140,000	12,000
(8)	Classrooms and offices.....	1977	1979	$ 2,365,000	25,000
			Total Est. Cost (Academic Facilities)	$13,898,000	
			One new campus of 900 to 1,200 students		

* Because of the variables of location, topography and campus design, Items 2 and 6 are extremely difficult to determine with any accuracy. Only ranges can be provided. The above figures represent mid-point estimates of possible ranges from $400,000 to $700,000 for (2) and from $680,000 to $900,000 for (6).

new sums in the 'bricks and mortar' of higher education in the future unless absolutely necessary."[33]

The Community College on the other hand, has a relatively small start up cost. The Special Projects team has worked in areas of the state where there are no formal sites. To develop a fully operational regional site will require significant aid, in the form of staff development, coordination, planning, and implementation which would be provided by the other regional sites and the Montpelier office.

It is planned that a new site's personnel would only provide 900 course openings during its first year. This would probably take the form of 100 student courses the first four months, 300 the second, and 500 in the third. This 900/1,500, new site to old site course opening ratio produces a start-up cost multiplier of 2/5 (i.e. 1,500 - 900/1,500) or 40% of a yearly site cost.

Projected yearly site costs for a new site are: [34]

		Each	Total
1	Coordinator	$12,720	$12,720
2	Assistant Coordinators	10,600	21,200
4	Counselors	7,765	31,060
1	Secretary	6,360	6,360
		Total Salary	$71,340

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33 Frank Smallwood, Chairman, Higher Education in Vermont: Past, Present, and Future, Joint Committee on Higher Higher Educational Planning, September, 1971, p. II, 15 to 17.

34 Salary figures from Budget Narrative, B-7, of CCV's portion of the Vermont State Colleges' FY/74 Budget Request. Other information from Dorothea S. Manna, Coordinator of Administrative Services, CCV, Montpelier, Vermont.

Total Salary plus 18% Fringe	$84,181
Other (office supplies, etc.)	5,540
Consultants	1,650
Grand total	$91,371

2/5 ($91,371) = $36,548 Start-up Cost

To summarize, the start-up cost for a conventional "brick and mortar" fifth state college would cost around $14,000,000. A similar capacity Community College regional site would cost $36,548 to start. Also the Community College site could be fully operational in a year while a conventional institution would take a few years just to build.

L. Projected Costs:

An important question to ask is, assuming the state provides some support for the Community College in FY/74, what will be the state's on-going financial responsibility? First, the Community College will remain a part of the State Colleges' budget request and this will allow the legislature to regularly re-evaluate the Community College. Next, the Community College plans for FY/74 to offer courses in three regional sites throughout seven counties in Vermont. As an on-going state college, it could expand to serve the entire state where the need exists. This would require three additional sites and, since considerable effort is involved in creating a new regional site, probably only one could be opened per year. Budgeted site costs, exclusive of teachers, for FY/74 are $91,371. Teachers salaries per site for 1,500 student courses (assuming the ongoing situation after the start-up year of

900 student courses) would be $67,500 per the FY/74 budget.[35]

This creates a total site cost of $158,871. The tuition charge would generate $67,500 and asuming federal monies continue to pay around 37.0%, then the cost to the state for a new site would be $35,589 or 20.5%.

Remembering that the FY/74 budget request was 12.7% of the total budget, this projection illustrates that a new site would, at least initially, be somewhat more expensive to the state. The reason is that the new site would not immediately be in a position to attract private and agency monies which the other sites can. Even if the Community College's budget request were 37.2% [36] like the State Colleges', this would only represent $254,104 (37.2% X $683,076). This illustrates the comparative advantage of the Community College, since the State Colleges' FY/73 appropriation averaged more than $1,000,000 per college.

To summarize, projections indicate that total future budget requests of the Community College to the State of Vermont will continue to be less than 20%. Projections for the state colleges in the Executive Budget FY/73 show a continued upward trend from their current position of 37.2% state support.

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35 Figures from the Budget Narrative, B-7, of the CCV's portion of the Vermont State Colleges' FY/74 Budget Request and section K of this document.

36 Calculated in Section C of this report.

Conclusions:

The Community College of Vermont is a non-campus, community based institution, which now offers an Associate degree. As of September 1, 1972 the Community College became a fifth state college under the Vermont State Colleges' Board.

To date, the Community College has served approximately 50 per cent disadvantaged Vermonters (i.e. low income or those with poor educational backgrounds). Students combine their academic studies with on-the-job work experience and thus generate tax revenues while attending school. The Community College serves only Vermonters, emphasizing low income, less mobile individuals, creating human capital in the form of a professionally trained population which has, historically, tended to attract industry.

Teachers are not paid for research and consulting and a larger percentage of the Community College's budget is directly related to teaching. Public and student response has been tremendous with about 1,200 student course units being taught currently by all volunteer teachers. At the present, there is a critical need for more Community College personnel, particularly counselors. This problem is a result of the financial constraints of the original Office of Economic Opportunity grant but can be solved with the projected FY/74 budget.

The potential gain to Vermont, both from increased tax revenues and from a general increase in economic and social benefits is significant.

Recalling the five steps outlined in the introduction and summarizing;

1. This study assumes, based on inputs from legislators, educators, and state personnel, that one objective of decision-makers is to provide higher education for Vermonters.

2. The most feasible alternatives appear to be: (a) Expand existing public facilities, (b) Construct other campus based public institutions, (c) Fund the Community College of Vermont, or (d) Fund existing private institutions.

3. Of the preceding four alternatives, three are basically the same for cost considerations. Only the Community College provides a feasible financial alternative to the high costs of higher education. The conclusions of this document clearly indicate that the other three alternatives cannot provide a higher education for many Vermonters and that the high costs will continue to be a significant problem in their operations.

4. The present value model in Exhibit IV of this paper illustrates the significant potential gain available from educating Vermonters at the Community College. These,and the social gains discussed in section H, provide significantly positive justification for state funding.

5. Given that the four alternatives can provide approximately the same product, the ranking clearly becomes a cost criterion. The Community College is unquestionably the least expensive and therefore, from the cost benefit standpoint, the most feasible.

The validity of these conclusions is not affected by any change that might occur in the $86,696 Community College FY/74 budget request to the Governor.

Exhibit I

Actual FY/73 State appropriations for Castleton, Lyndon, and Johnson are as follows:

State College Board's Central Office	$ 275,739 *
Castleton	944,000
Lyndon	707,000
Johnson	958,000
Total	$2,884,739

* Adjusted by proportion of total Vermont State Colleges FTE's going to Lyndon State College, Johnson State College and Castleton State College.

These figures came from David M. Otis, Department of Budget and Management, State of Vermont.

Exhibit II

The Executive Budget FY/73 page 192 indicates that UVM requested $10,187,760 from the state for FY/73. Actual appropriations were $9,529,000 or 93.5%. (From David M. Otis, Department of Budget and Management, State of Vermont)

This budget also indicates, on page 191, that the Colleges of Education and Arts and Sciences requested $4,987,103 (3,922,247 + 1,064,856)* Adjusting this by the 93.5% gives $4,662,941. This is only Instructional Expense and the total cost must also include Administrative and General Expense. The $9,529,000 is appropriated to partially support the General University and the Agricultural Services which are budgeted for FY/73 at $32,124,749 (28,380,194 + 3,744,555). The Administrative and General Expense request was $5,788,103 or 18.0% of the $32,124,749. Adjusting the previously computed $4,662,941 upward by 18.0% gives $5,502,270.

Now adjusting the $32,124,749 by the 93.5% gives $30,036,640. Dividing the $9,529,000 actual state appropriations by the adjusted budget for the General University and the Agricultural Services of $30,036,640 gives a factor of 31.7% state support.

The adjusted budget for the Colleges of Education and Arts and Sciences of $5,502,270 times the 31.7% state support factor indicates that state support for these two functions is approximately $1,774,220.

* For comparison only the figures from UVM's colleges of Education and Arts and Sciences were used. These offer course work which most resemble Community College courses. Other UVM colleges, such as Medical, Agricultural, and Graduate, have significantly higher costs per unit and including these would not create a realistic comparison.

Exhibit III

I. Administration Expense

Director	$ 15,900
Planner	12,720
Business Manager	12,720
Financial Aid Officer	12,000
Administrative Assistant	8,990
Registrar	8,990
3 Coordinators @ 12,720	38,160
Public Information Officer	7,850
5 Secretaries @ 6,360	31,800
Janitor	1,050
Total Administration	$150,280
Plus Fringe (18%)	177,330

II. Instructional Expense

Teachers salaries	$202,500
Teacher and Student Learning Support	
Learning Services	12,720
Educational Programmer	12,000
Media Analyst	12,000
Staff Developer	12,000
5 Assistant Coordinators @ 10,600	53,000
11 Counselors @ 7,765	85,420
Logistics Supporter	7,950
Subtotal	$195,090
Subtotal plus fringe (18%)	230,206
Consultants	16,500
Total Instructional Expense	$449,206

III. Operational Expense

Supplies

Educational (tapes and films)	$ 440
Janitorial	110
Office	3,025

Contractual Services

Dues and subscriptions	$ 110
Insurance	440
Data Processing	1,650
Electricity	220
Postage	1,650
Printing, duplicating and advertising	7,150
Space and conferences	11,500
Telephone	8,250
Travel	
In-state	15,400
Out-of-state	1,100
Miscellaneous	770

Equipment

Adding Machines	$ 300
Desks and chairs	500
Files	100
Typewriters	500
Office accessories	250
Other office furniture	75
Duplicating equipment	3,000
Total Operational Expense	$56,540

Grand Total $683,076

Comparison of VSC FY/72 costs and CCV
projected costs for FY/74

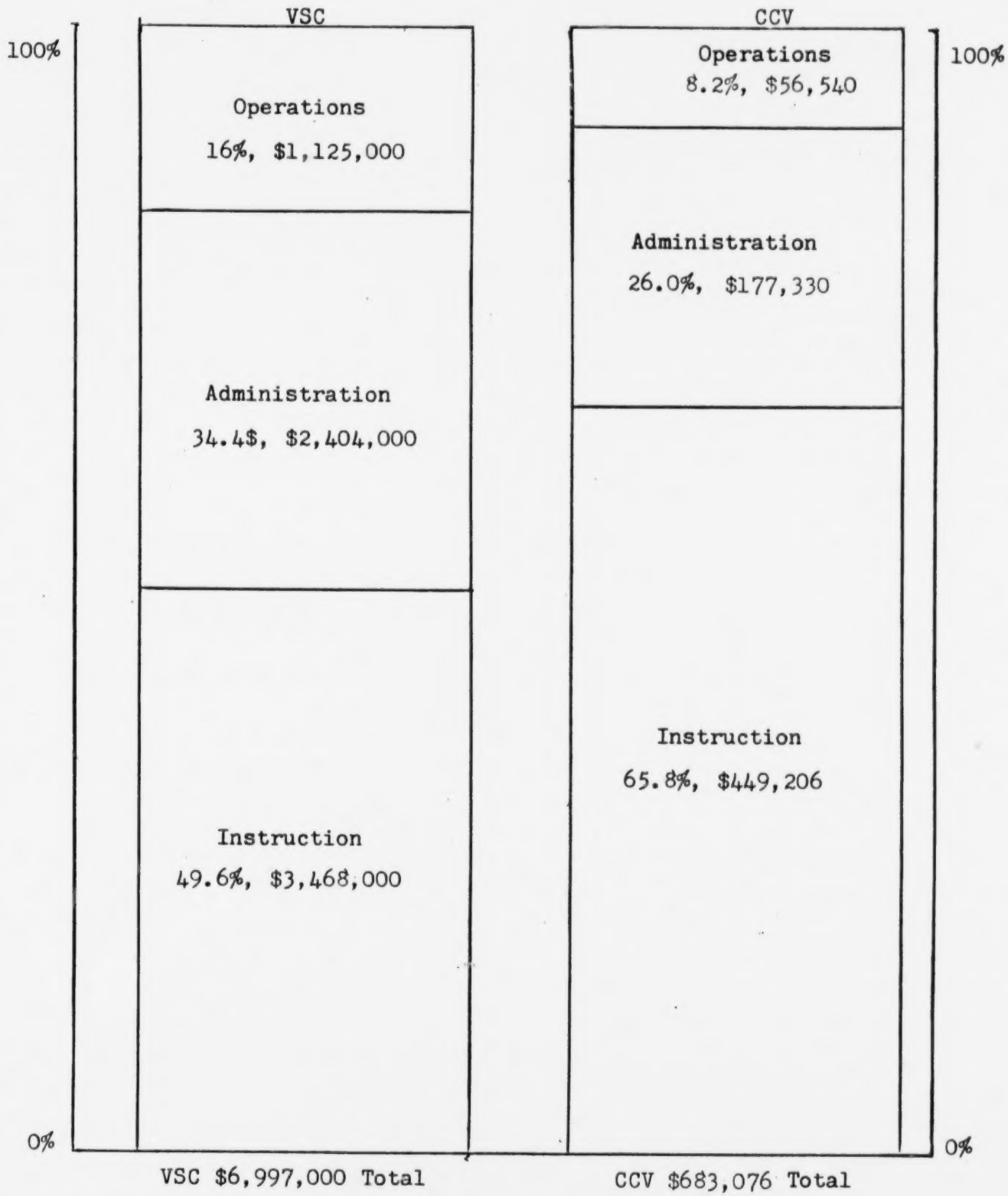

Exhibit IV

A Present Value Model:

"Training programs, like other investments in human capital, may continue to yield real benefits for many years after the costs of instruction have been incurred. For instance, training may increase the productivity of individuals over the remainder of their working lifetimes." 37

A present value model is an analytical device to evaluate all costs and benefits, both present and future, in terms of current dollars. It is a technique, frequently used in evaluating investments, for ranking alternatives which last over many years. To examine the present value of benefits provided by the Community College, a modified version of a formula employed by Miller and Hornseth will be examined. 38

$$Va = \sum_{N=A}^{64} \frac{YaPn\ (1+X)^{N-A+1}}{(1+R)^{N-A+1}}$$

Va = the present value of all allocative educational benefits from age A through age 64.

A = the average age of students at the end of their CCV experience.

Ya = the annual increase in earnings associated with education.

Pn = the survival rate to age 65.

R = the discount rate used to convert future earnings to their present value.

X = the annual increase in earnings level due to rising productivity.

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37 D.O. Sewell, Training the Poor, a Benefit-Cost Analysis of Manpower Programs in the U.S. Antipoverty Program, Industrial Relations Centre, Queen's University, Kingston, Ontario, 1971, p. 29.

38 Herman P. Miller, et.al. Present Value of Estimated Lifetime Economics, Washington, D.C.: U.S. Dept. of Commerce, Bureau of the Census, 1967, p. 2.

The following discussion will clarify these variables in terms of the CCV's student statistics and various national statistics. The calculation will assume that the student is in a degree program, either certificate or associate of arts. Projections indicate that 60% will be in a degree program.

1. The average age of a CCV's student is 27 [39] when entering the program and it takes, on the average, three years to complete. (i.e., two for a certificate and four for an AA, this gives the value of A=30 for the model)

2. National statistics indicate that Caucasians with 1-3 years of college earn, on the average, $11,949 per year during their life, while people with only a high school diploma average $10,563. (i.e. Ya=1386) 40

3. The normal retirement age of 65 was used. This was adjusted for the possibility of death before age 65 by using the white sections of the 1967 life tables for the United States.41 This indicates that 81% of the white women will live to 65 and 66% of the white men. Since 73.5% of the CCV's student body has to date been female, the appropriate factor is 77.0% (i.e. [73.5%x 81.0] + [26.5%x 66.0]) (i.e. Pr = 77.0%) 42

4. A present value adjustment is used because a dollar of benefits today is worth more to us than a dollar of benefits in 30 years (because we could put today's dollar in the bank and earn interest for 30 years). To measure the benefits and costs of the CCV's service on a comparable basis, it is necessary to find the discounted value of benefits at the time the costs were incurred.

   Efficiency in the allocation of national resources requires that the social discount rate used in assessing public investment programs be equal to the opportunity cost of withdrawing resources from the private sector of the economy. Several different approaches have been taken in calculating this social opportunity cost of public funds. Nevertheless, a majority of academic economists testifying before Joint Economic Committee Hearings in 1967-68 concurred that 10 per cent was an appropriate figure for the social opportunity cost of public funds.43

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39 VRCCC's Annual Report, dated June 30, 1972, p. 67.

40 U.S. Statistical Abstract 1971, U.S. Department of Commerce (92nd edition) Washington, D.C., 1971, p. 319.

41 Vital Statistics of the United States, 1967, vol II, Mortality U.S. Department of Health, Education and Welfare, Washington, D.C., Government Printing Office, 1969, p. 5-5.

42 Taken from the printout of the statistics from the CCV's current student questionnaire.

43 U.S. Congress, Joint Economic Committee Subcommittee on Economy in Government, The Planning-Programming-Budgeting System: Progress and Potentials Hearings, 90th Congress,

Social opportunity cost considerations have also led the Bureau of the Budget to advocate the adoption of a 10 per cent social discount rate in issuing guidelines for discounting procedures to federal agencies.[44] For the same reason, a 10 per cent social discount rate is applied uniformly throughout the Department of Defense in evaluating expenditures "where the sole or primary institution for such projects is economic."[45] Accordingly a social discount rate of 10 per cent will be employed in this model to derive the present value of benefits from training. (i.e. R=10%)

5. In projections of real earning levels based on cross-section study findings, adjustments must be made for the effects of rising national productivity over time. Based on findings of similar studies, a growth rate of 2.0 per cent was chosen for use in the projections of this analysis as reflecting the likely annual growth in earnings to a labor force of constant quality. (i.e. X=2.0) [46]

Substituting the above values into the model and making the appropriate calculations produces a present value figure of Va=$10,230 per graduate.Since, on the average, it takes three years at the CCV to complete a program, then approximately one third of the CCV student body will receive a degree each year. (The attrition rate to date has been about 10%). At the projected FY/74 student body level of 1,500, with 60% enrolled in degree programs, one third graduating and a 10% attrition rate, creates a graduating class of 270. This produces a total gain of $2,762,100 ($10.230 X 270) for the $683,076 cost, or a 404% return on investment.

A more interesting use of the model may be to examine the costs to the state in requested appropriations and the gain through increased tax revenues. The budgeted cost to the state for FY/74, as stated previously in section C, is $86,696. The gain requires a number of calculations. First, the CCV's average family size is 3.6 and the average income is $6,202.[47] Multiplying the 3.6 times the $675 exemption and subtracting this from $6202 gives a taxable income average of $3772 and a federal income tax average of $581. The Vermont State tax is 28.75% of this or $167. Adjusting the $6202 by the average gain of $1386 for 1-3 years of education gives a new income figure of $7588.[48]

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44 Joint Economic Committee, Hearings on Interest Rate Policy and Discounting Analysis, Washington, D.C., 1965, p.28.

45 Ibid, p. 146.

46 U.S. Department of Commerce, Bureau of Census, Long-Term Economic Growth (Washington, D.C.: Government Printing Office, 1966) p. 101. Also for similar calculations of future annual growth in earnings to a labor force of constant quality, See Glen G. Cain, Benefit-Cost Estimates for Job Corps, Madison, Wis.: Institute for Research on Poverty, University of Wisconsin, 1967, pp 41-42.

47 VRCCC's Annual Report, dated June 30, 1972, page 65.

48 Vermont's per capita income is below the national average which indicates this effect may be greater in Vermont.

Adjusting for 3.6 exemptions produces a taxable income of $5158. The federal tax on this $840 and at 28.75% for the state tax, a state figure of $242 creates a net increase tax revenue of $75 per student. (242-167) Again using the model and now changing Ya to $75 produces a Va = $551. Multiplying by the projected graduating degree students (calculated earlier in this section at 270) give an increase in state income tax revenue of $148,770.

This illustrates that the present value of the income tax gain more than pays the requested state appropriations. If the sales tax effect is included on the $2,762,100 total gain than the total CCV contribution would be even more significant.

Some of the preceding figures were not based specifically on Vermont or CCV statistics as indicated in footnotes. This was necessary since the specific statistics were either not collected or not yet available. When this happened the next best source was used. One example is the income differential for individuals with a high school degree and those with an AA degree. The national differential is $1,386 and the equivalent Vermont figure is not available. The Vermont differential is probably more significant since the state's average income is below the national average. Also, 50% of the CCV's students are not fully employed and 50% of the students are low income, making the potential gain even more significant.

To summarize, the model indicates significant potential gains to the state and communities resulting from the community college's services. The magnitude of the gain is in the millions.

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